

Multifunctional, Boron-Foam Based Radiation Shielding, Phase I

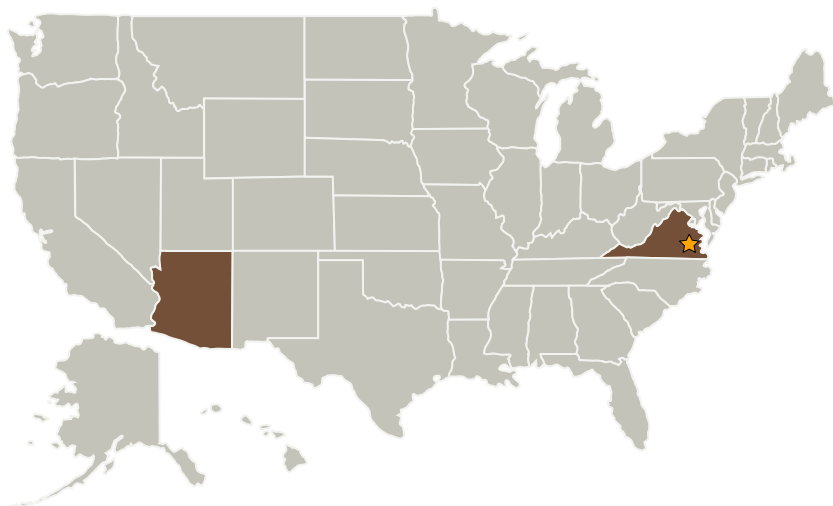
Completed Technology Project (2005 - 2005)



Project Introduction

The NASA vision of Space Exploration requires new approaches to radiation shielding. Both Spiral 2 and Spiral 3 concepts are extremely sensitive to weight reduction. Currently used thermal protection (TPS) and radiation shielding concepts are separate identities. As a result, the net weight of current TPS/radiation shielding concepts is very significant. In an effort to greatly reduce the mass of the Crew Exploration Vehicle (CEV), a totally new concept is proposed. It merges a novel approach to TPS combined with a totally new approach to radiation shielding. A boron carbide foam will be produced by a novel method. This foam will be integrated into a CEV TPS concept. As a result, the TPS will serve a multiple function including radiation shielding resulting in a significant weight saving.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
MER Corporation	Supporting Organization	Industry	Tucson, Arizona



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

Arizona

Virginia

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Project Manager:

Patrick E Scheuermann

Principal Investigators:

Witold Kowbel

Robin N Henderson

Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
 - └ TX13.2 Test and Qualification
 - └ TX13.2.2 Propulsion, Exhaust, and Propellant Management